asserts that Celsat has not developed any new or innovative technology, and states that CDMA was developed by Qualcomm, Inc. LQSS also contends that Celsat has not demonstrated the technical feasibility of its system. TRW maintains that Celsat is requesting a pioneer's preference for technologies developed by other parties, and states that Celsat has failed to show that its proposed system is technically feasible. AMSC, LQSS, and TRW also raise procedural objections to Celsat's pioneer's preference request, as do Constellation Communications, Inc. and Ellipsat Corporation, which each filed motions to dismiss both Celsat's original petition and pioneer's preference request.

59. In the *Notice*, we stated that we would defer action on Celsat's pioneer's preference request until final action had been taken in the pioneer's preference review proceeding, ET Docket No. 93-266.[154] Action has now been completed in that proceeding; accordingly, we herein take action on Celsat's pioneer's preference request.[155]

60. *Decision.* We find that Celsat's pioneer's preference request fails to meet the pioneer's preference criteria. We find Celsat's proposal insufficiently innovative to warrant a pioneer's preference, and we find that Celsat has not demonstrated the technical feasibility of its proposal.

61. Celsat claims as the innovative features of its system the use of CDMA, GSO satellites with large multibeam antennas, operation in the 2 GHz band, and hybrid space and terrestrial operation of its proposed system.[156] We note, however, that CDMA is used in many communications systems, and, as LQSS points out, CDMA was not developed or improved by Celsat.[157] We further note that the use of GSO satellites for continuous service to a given area is also a technique already heavily used in satellite communications, and the fact that the 2 GHz band is useful for satellite services is reflected in the fact that there are satellite allocations in the 2 GHz band.[158] In addition, hybrid space and ground operation of a communications system has also been proposed by others before Celsat's request.[159] We thus find that Celsat's combination of these current techniques is not sufficiently innovative to warrant a pioneer's preference.

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[154] *See Notice* at n. 6.

[155] By *Public Notice* released May 14, 1996, Celsat was required to submit a supplement to its pioneer's preference request. It did so on June 21, 1996.

[156] *See, e.g.,* Celsat Amendment to Request for Pioneer's Preference at 26-27.

[157] *See* LQSS Comments in Opposition at 5-7.

[158] *See, e.g., Big LEOs Report and Order*, 9 FCC Rcd 5936 (1994).

[159] *See* GTE Comments in Opposition at 9 (citing Chien, Goodman, Russell, *Cellular Access Digital Network (CADN): Wireless Access to Networks of the Future*, 25 IEEE Communications Magazine 22-31 (1987)).

62. Celsat also has not presented a demonstration of the technical feasibility of its proposal. Our rules require that a pioneer's preference applicant present either summarized results of an experiment or a technical showing of feasibility.[160] Celsat has not performed an experiment to demonstrate the technical feasibility of its proposal, and while Celsat's pioneer's preference request presents a large amount of technical data on its proposed system's coverage pattern, frequency plan, and marketing figures, this data does not constitute a technical showing of feasibility.

63. As indicated above, the burden is on the pioneer's preference applicant to demonstrate that its proposal is both innovative and technically feasible. For the foregoing reasons, we conclude that Celsat has failed to meet this burden, and we therefore deny its pioneer's preference request.

FURTHER NOTICE OF PROPOSED RULE MAKING

64. In the *First Report and Order*, above, we modified the BAS allocation from 120 megahertz at 1990-2110 MHz to 105 megahertz at 2025-2130 MHz, and stated that we will require MSS operators to pay the costs of relocating BAS incumbents into the new BAS band, including the costs of clearing FS incumbents from the 2110-2130 MHz portion of the new BAS band. We further provided for MSS/FS sharing of the 2165-2200 MHz band where such sharing is possible without unacceptable mutual interference. In cases where sharing is not possible, we allowed MSS operators to relocate FS incumbents to frequencies above 5 GHz in accordance with our Emerging Technologies policies. In this *Further Notice*, we propose specific details of relocation, and request comment on our proposals.

65. *Relocation of Existing 1990-2025 MHz Band Services.* In the *Notice*, we proposed to accomplish relocation of BAS incumbents in accordance with our Emerging Technologies policies, with modifications necessitated by the differences between FS, for which our Emerging Technologies policies were formulated, and BAS. We continue to adhere to that principle, but also propose details of the relocation process for BAS. We propose to channelize the new BAS band into seven channels of 15 megahertz bandwidth, with the new channelization plan to become primary on January 1, 2000, or the day after the last FS licensee in the 2110-2130 MHz band has been relocated in accordance with Sections 101.69-101.81 of the Commission's rules, whichever date is later. We further propose to allow MSS operators to negotiate with BAS licensees for relocation.

66. The current BAS band is divided into seven channels. Commenters in this proceeding stated that BAS at 2 GHz is currently heavily used.[161] For this reason, we propose

[160] *See* 47 C.F.R. § 5.207.

[161] *See* MSTV Comments at 10; SBE Comments at 1-2; CBT Comments at 7.

to retain the seven-channel plan for the BAS band. Each channel of the new BAS band will be 15 megahertz wide.[162] We believe that replacement of current BAS equipment with equipment having narrower intermediate frequency bandpass to avoid degradation in adjacent-channel rejection will be all that is necessary to relocate BAS incumbents. In the case of newer equipment, simply retuning the equipment to the new frequencies may suffice for relocation of BAS incumbents.

67. Rechannelizing BAS raises a problem not encountered in our Emerging Technologies proceeding. A BAS transceiver operating in any channel of the new channel plan except the new channel A1 (2025-2040 MHz) will overlap two channels of the current BAS band. Similarly, a BAS transceiver operating on the current channel plan will overlap two channels of the new BAS band. We propose to allow BAS licensees to operate under the new channel plan on a secondary basis, so long as operations under the new channel plan do not interfere with BAS operations under the current channel plan. After the new channel plan becomes primary, we propose to allow BAS licensees to operate under the current channel plan on a secondary basis. This scenario would allow for testing and operation of new equipment, provided these operations do not interfere with other users of the band.

68. We note that BAS tends to be both local in nature and highly directional in its emissions. For this reason, we inquire whether we should allow a more flexible channelization of the new BAS band. For example, it is possible that in some markets not all of the seven BAS channels will be needed, and BAS licensees in these markets may prefer to adhere to the current BAS channel plan, simply forgoing the use of channels A1 and A2 (1990-2025 MHz) and thus using only the five remaining channels, rather than changing to the proposed channelization plan for the new BAS band. It is also possible that by switching to digital equipment, BAS licensees may be able to operate with narrower channels, thus allowing for more than seven channels within the new BAS band. We thus request comment on whether we should allow for flexible channelization of the new BAS band. If so, should we designate one channelization plan as primary and any others as secondary, as proposed above, in order to resolve any cases of interference that may arise? Further, we note that it is possible that the broadcast industry may convert to digital BAS in the future. We request comment on likely scenarios for conversion from analog to digital BAS, and the implications such a conversion may have for BAS spectrum requirements.

69. Because BAS and FS generally cannot share spectrum, the relocation and rechannelization of the BAS band in any specific geographic area must be coordinated with the clearing of FS licensees in that area from the 2110-2130 MHz band. We propose to set a specific date by which all relocation and rechannelization of BAS, and the accompanying relocation of incumbent FS licenses in the 2110-2130 MHz band, will be expected to be completed nationally. That is, we propose to make the new BAS channelization plan above primary on January 1, 2000,

[162] We propose that the new BAS band will consist of seven channels, with frequencies of 2025-2040 MHz, 2040-2055 MHz, 2055-2070 MHz, 2070-2085 MHz, 2085-2100 MHz, 2100-2115 MHz, and 2115-2130 MHz.

or the day after the last FS licensee in the 2110-2130 MHz band has been relocated in accordance with Sections 101.69-101.81 of the Commission's rules, whichever date is later. The primary status of the new BAS channelization plan, however, would be subject to the rights of the relocated FS incumbents to be returned to their original facilities within one year if their relocated facilities or equipment prove not to be equivalent to their original facilities, in accordance with the Emerging Technologies rules.[163] In that event, we tentatively believe that we should maintain the primary status of the current BAS spectrum and channelization for one year after the relocation of the last FS licensee from the 2110-2130 MHz band. We request comment on this proposal. For example, is the January 1, 2000 date appropriate? Can BAS equipment tuned to the new channelization plan be manufactured in sufficient quantity by that date? In addition, we seek comment on whether it is necessary to clear completely fixed services from the 2110-2130 MHz band before relocated BAS operations can begin in that band. For example, depending on the geographic deployment of incumbent fixed services, are there circumstances under which it would be possible for BAS operations to begin within the 2110-2130 MHz without immediately clearing existing fixed services? Parties are invited to comment on the feasibility of such an arrangement, giving specific cases of how this alternative might be carried out in practice. We also encourage the MSS, BAS, and FS industries to study the feasibility of band sharing between any two or all three of these services, on a short term or permanent basis. We would carefully consider any complete or partial solutions to sharing problems agreed upon by the industries involved.

70. In our Emerging Technologies proceeding, we encouraged the parties involved in relocation to negotiate relocation agreements voluntarily, and stated that we would accommodate any agreement which is consistent with our rules.[164] In order to ensure that the transition of current services and introduction of new services cannot be stymied by parties unwilling to negotiate, we established a two-year voluntary negotiation period, commencing with our acceptance of applications for licensing of new technology services. After that period, we established that a new technology provider could invoke a one-year mandatory negotiation period by a written request to the current licensee to negotiate relocation terms. During the mandatory period, the parties would be required to negotiate in good faith, but again the parameters of the negotiation are left to the parties. We determined that this two-phase negotiation period best balanced the needs of the parties involved.[165] After this negotiation period, the new technology provider may involuntarily relocate the current licensee. We propose to apply the same policy here for MSS negotiations with all pertinent BAS and FS licensees, including FS licensees who must be relocated from the 2110-2130 MHz band, in order to clear that band for BAS relocation. In order for a MSS provider to involuntarily relocate a BAS licensee:

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[163] *See* 47 C.F.R. §101.69(e) and the discussion of FS relocation below.

[164] *See Emerging Technologies* , ET Docket 92-9, *First Report and Order and Third Notice of Proposed Rule Making*, 7 FCC Rcd 6886 at ¶ 24.

[165] *See Emerging Technologies,* ET Docket 92-9, *Third Report and Order and Memorandum Opinion and Order*, 8 FCC Rcd 6589 at ¶¶ 15-16.

- All relocation expenses would be paid entirely by the displacing MSS provider. These expenses would include all engineering, equipment, and site costs and FCC fees, as well as any reasonable additional costs.

- Relocation facilities or equipment would be required to be fully comparable to those being replaced.

- All activities necessary for placing the new facilities or equipment into operation, including clearing incumbents from the 2110-2130 MHz band into which BAS will be relocated, engineering, and frequency coordination, would be completed before relocation.

- The new facilities or equipment would be fully built and tested before the relocation may commence.

- Should the new facilities or equipment, within one year, prove not to be equivalent in every respect to the relocated facilities, the displacing MSS provider would be required to move the relocated operation to its original facilities or equipment until complete equivalency is attained.

We request comment on whether this is the appropriate plan for relocation of BAS incumbents. Particularly, we inquire whether the starting date for voluntary negotiations should be later, given that we have proposed to require FS licensees to be cleared from the 2110-2130 MHz band before BAS relocation can commence. We further seek comment on relocation procedures. Should we follow the procedures of our Emerging Technologies rules? If so, should we modify those procedures for the BAS band as we propose below to modify the procedures for FS relocation? Should we make other modifications to the Emerging Technologies rules, such as taking the value and age of BAS equipment into account in deciding appropriate costs in the case of involuntary relocation? Finally, should we establish a "sunset" date, *i.e.*, a reasonable time for relocation after which any BAS licensees who have not been relocated will be required to vacate the spectrum without compensation? We applied such a provision to FS licensees in our *Microwave Cost-Sharing* proceeding.[166] If we apply a similar sunset date in the case of BAS relocation, what should that date be?

71. As we noted above, however, negotiating relocation with BAS incumbents individually could lead to interference between licensees on the current BAS channel plan and licensees on the new BAS channel plan. We inquire further as to whether we should require BAS incumbents to negotiate on a collective basis with MSS operators, with the results to be binding upon all BAS licensees. If so, should we require all BAS incumbents in each market,

[166] *In re Amendment to the Commission's Rules Regarding a Plan for Sharing the Costs of Microwave Relocation (Microwave Cost-Sharing)*, WT Docket 95-157, *First Report and Order and Further Notice of Proposed Rule Making*, 11 FCC Rcd 8825 (1996). *See also* ¶ 75 *infra*.

or all incumbents nationwide, to be represented in negotiations by a single organization? We also seek comment on whether we should freeze new BAS license applications during the negotiation period. If we do not freeze new applications, given that new BAS license applicants would be on notice of the pending relocation of BAS, should we subject new BAS licenses issued after the release of this *Further Notice* to a condition requiring relocation to be at their licensees' own expense?

72. In order to encourage early, voluntary negotiations, we should discourage MSS operators from waiting for another MSS operator to clear the spectrum at its own expense, allowing "free riders" to begin operations later without having borne any of the costs of clearing the spectrum. Ideally, all initial MSS licensees in the band will divide the tasks and costs of early clearing of the band, but this may not be the case. For this reason, we propose to require subsequently entering MSS licensees in the 1990-2025 MHz band to compensate earlier MSS operators for the reasonable costs incurred in clearing the spectrum. Under this proposal, subsequently entering MSS licensees would be required to compensate earlier entrants in proportion to the amount of spectrum the subsequent entrant would be authorized to use. We seek comment on this proposal.

73. *Relocation of Existing 2110-2130 MHz and 2165-2200 MHz Band Services.* As we stated in the *First Report and Order*, we encourage sharing of the 2165-2200 MHz band between MSS and FS licensees. Wherever such sharing is possible, we will not mandate the relocation of the FS incumbent. Where sharing is not possible however, we intend to require relocation of the incumbent FS licensee to bands above 5 GHz.

74. In general, we propose to follow our Emerging Technologies policies in providing for the relocation of FS incumbents from the 2110-2130 MHz and 2165-2200 MHz bands, as codified at 47 C.F.R. §§ 101.69-101.81. Incumbents will be relocated from the 2110-2130 MHz band to clear that band for relocated BAS operations. In our Emerging Technologies proceeding, we established two periods for negotiation between new emerging technology licensees and incumbent FS licensees. The first period is for voluntary negotiations, in which the parties may arrive at any mutually agreeable solution. Negotiations during this period are strictly voluntary, and we established no parameters for these negotiations. The voluntary period begins with our acceptance of license applications for the emerging technology service, and lasts for two years, or, in the case of public safety FS, three years.[167] The voluntary period is followed by a mandatory negotiation period, which begins at any time after expiration of the voluntary period when the emerging technologies licensee informs the FS incumbent in writing of the emerging technology licensee's desire to negotiate relocation. During the mandatory period, the parties would be required to negotiate in good faith, but again the parameters of the negotiation are left to the parties. The mandatory period lasts for one year, or two years for public safety FS

[167] Public safety FS licensees eligible for the three-year voluntary negotiation period are defined in *Emerging Technologies*, ET Docket 92-9, *Memorandum Opinion and Order*, 9 FCC Rcd 1943 at ¶¶ 36-41.

incumbents.[168] Should the parties fail to reach an agreement during the mandatory negotiation period, the emerging technology provider would be able to request involuntary relocation of the existing facility. Involuntary relocation requires that the emerging technology provider (1) guarantee payment of all costs of relocating the incumbent to a comparable facility; (2) complete all activities necessary for placing the new facilities into operation, including engineering and frequency coordination; and (3) build and test the new FS or alternative system.[169] Once comparable facilities are made available to the incumbent microwave operator, the Commission will amend the 2 GHz license of the incumbent to secondary status. After relocation, the FS incumbent is entitled to a one-year trial period to determine whether the facilities are indeed comparable, and if they are not, the emerging technologies licensee is required to remedy the defects or pay to relocate the FS incumbent back to its former or an equivalent 2 GHz frequency.[170]

75. We propose to modify our Emerging Technologies policies to some extent. In our *Microwave Cost-Sharing* proceeding, we decided that a fair balance between emerging technologies and FS incumbents is struck by allowing an FS incumbent to retain primary status unless and until an emerging technology licensee requires use of the spectrum, while providing that the emerging technology licensee will no longer be obligated to pay relocation costs ten years after the voluntary negotiation period begins for the first emerging technology licensees in the service. We stated that once the relocation rules "sunset," an emerging technology licensee may require the incumbent to either cease operations or relocate itself to alternate facilities at its own expense, provided the emerging technology licensee intends to start operation of a system within interference range of the incumbent, as determined by TIA Bulletin 10-F or any standard successor document. We provided that the new technology licensee must notify the FS incumbent in writing, and must provide the incumbent with no less than six months to vacate the spectrum. After the six-month period has expired, the incumbent must surrender its 2 GHz license to the Commission, unless the parties agreed to allow the incumbent to operate.[171]

76. In our *Microwave Cost-Sharing* proceeding, we also provided guidelines for negotiation in good faith during the mandatory negotiation period. These guidelines stated that we expect incumbent FS licensees to allow inspection of their facilities by the emerging technologies (there, PCS) licensee and to provide any other information that the PCS licensee needs in order to evaluate the cost of relocating the incumbent to comparable facilities. We stated that we would consider claims that a party has not negotiated in good faith on a case-by-case basis, and that we will consider, *inter alia*, the following factors: (1) whether the PCS

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[168] *See Emerging Technologies*, ET Docket 92-9, *Third Report and Order and Memorandum Opinion and Order*, 8 FCC Rcd. 6589 at ¶ 15.

[169] *See id.* at ¶ 5.

[170] *See* 47 C.F.R. §§ 21.50, 94.59.

[171] *See id.* at ¶ 65.

licensee has made a *bona fide* offer to relocate the incumbent to comparable facilities; (2) if the microwave (FS) incumbent has demanded a premium, the type of premium requested (*e.g.*, whether the premium is directly related to relocation, such as system-wide relocations and analog-to-digital conversions, versus other types of premiums) and whether the value of the premium as compared to the cost of providing comparable facilities is disproportionate (*i.e.*, whether there is a lack of proportion or relation between the two); (3) what steps the parties have taken to determine the actual cost of relocation to comparable facilities; and (4) whether either party has withheld information requested by the other party that is necessary to estimate relocation costs or to facilitate the relocation process. Finally, to ensure that parties do not bring frivolous bad faith claims, we also required any party alleging a violation of our good faith requirement to provide an independent estimate of the relocation costs of the facilities in question. We provided that independent estimates must include specifications for the comparable facility and statements of the costs associated with providing those facilities to the incumbent licensees.[172]

77. We propose to provide for FS relocation in this case using the same sunset period and good faith guidelines as those established in the *Microwave Cost-Sharing* proceeding. Ten years after the beginning of the voluntary negotiation period for the first MSS licensees, MSS operators would no longer be required to pay the costs of relocating FS incumbents, and would be able to require the incumbents to cease operating or relocate at their own expense upon six months written notice. The MSS and FS industries are currently developing interference standards under the good offices of TIA. We propose to adopt these standards, or their successors, in determining whether our sunset rules would apply to a given FS incumbent. At the end of the six-month notice period, the incumbent FS licensees would be required to surrender their 2 GHz licenses to the Commission, unless the incumbent FS licensees arrived at an agreement with the MSS operators to allow the incumbent FS licensee to continue operations. During mandatory negotiations, we propose to adhere to the guidelines enumerated above. We request comment on whether we should apply the sunset rule of 47 C.F.R. § 101.81 and the good faith guidelines of 47 C.F.R. § 101.75 for the 2110-2130 MHz and 2165-2200 MHz bands. If so, we inquire whether the sunset date should be ten years after the beginning of the voluntary negotiation period for relocation, as in 47 C.F.R. § 101.81, or some other date.

78. In our *Microwave Cost-Sharing* proceeding, we also proposed to adjust the voluntary and mandatory negotiation periods for FS relocation in the case of the D, E, and F spectrum blocks of PCS. Specifically, we proposed to reduce the voluntary period to one year, or two years in the case of public safety FS incumbents. We proposed to increase the mandatory negotiation period to two years, or three years in the case of public safety FS. Thus, the total negotiation period would remain the same, but the division into voluntary and mandatory periods would be altered. We request comment on whether we should adjust the negotiation periods for the MSS band. If so, should we follow the proposal in our *Microwave Cost-Sharing* proceeding, or should we establish some other negotiation periods? Also, should we begin the voluntary negotiation period when we accept applications for MSS licensing, or at some later date?

[172] *See id.* at ¶¶ 21-22.

79. In addition to addressing FS in the 2110-2130 MHz and 2165-2200 MHz bands, we inquire into procedures for relocation of FS licensees in the 2130-2150 MHz band. This band is not directly reallocated by this proceeding, but FS links in the 2130-2150 MHz band are paired with links in the 2180-2200 MHz band, which is being reallocated to MSS. We propose to allow parties to negotiate the relocation of links in the 2130-2150 MHz band during negotiations for the relocation of FS licensees in the 2180-2200 MHz band. We inquire, however, whether we should assume that the involuntary relocation of FS links in the 2180-2200 MHz band necessitates relocation of the paired links in the 2130-2150 MHz band, or whether we should require relocation only of links in the 2180-2200 MHz band, leaving situate the paired links in the 2130-2150 MHz band, unless the FS licensees involved demonstrate the need to have the paired links in the 2130-2150 MHz band included in involuntary relocation. Commenters are urged to address the feasibility of paired links in widely separated frequency bands, as well as any other aspects of this question.

80. Finally, as in ¶ 72 above, we propose to require subsequently entering MSS operators to compensate earlier MSS operators for the costs of relocating incumbent FS licensees. We propose that the subsequently entering MSS operators will pay a proportionate share of the costs of clearing the spectrum band that the subsequently entering MSS operator is authorized to use. Further, in any case where the earlier MSS operator was able to share spectrum with FS incumbents, but the entry of another MSS operator necessitates relocation, we propose to require the earlier MSS operator to compensate the subsequently entering MSS operator in the same manner. We also inquire, as in ¶ 70 above, whether we should consider the age and value of FS equipment in determining costs issues in the case of involuntary relocation.

81. We request comment on all these proposals. Commenters are encouraged to present possible alternatives to any of the proposals we present here. We also specifically inquire whether there are sound reasons to establish different relocation procedures for the BAS band than those we establish for FS relocation.

PROCEDURAL MATTERS

Regulatory Flexibility Analysis

82. A Final Regulatory Flexibility Act Statement relating to the *First Report and Order* and an Initial Regulatory Flexibility Act Statement relating to the *Further Notice of Proposed Rule Making* are contained in Appendix E of this *First Report and Order and Further Notice of Proposed Rule Making.*

Ex Parte Rules - Non-Restricted Proceeding

83. This is a non-restricted notice and comment rule making proceeding. *Ex parte* presentations are permitted except during the Sunshine Agenda period, provided they are disclosed as provided in the Commission's rules.[173]

Comment Period

84. Pursuant to applicable procedures set forth in Sections 1.415 and 1.419 of the Commission's rules, interested parties may file comments on or before **[60 days from date of publication in the Federal Register]** and reply comments on or before **[90 days from date of publication in the Federal Register]**. To file formally in this proceeding, you must file an original and four copies of all comments, reply comments, and supporting comments. If you want each Commissioner to receive a personal copy of your comments, you must file an original plus nine copies. You should send comments and reply comments to the Office of the Secretary, Federal Communications Commission, Room 239, 1919 M Street, N.W., Washington, D.C. 20554. A copy of all comments should also be filed with the Commission's copy contractor, ITS, Inc., 2100 M Street, N.W., Suite 14, (202) 857-3800.

Contact Persons

85. For further information concerning this proceeding, contact Sean White at (202) 418-2453, swhite@fcc.gov, Office of Engineering and Technology.

ORDERING CLAUSES

86. Accordingly, IT IS ORDERED that Part 2 of the Commission's Rules IS AMENDED as specified in Appendix C, effective 30 days after publication in the Federal Register. IT IS FURTHER ORDERED that Celsat's request for a pioneer's preference, PP-28, IS DENIED. Authority for issuance of this *First Report and Order* is contained in Sections 4(i), 302, 303(g), 303(r), 309(j), 332(a), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 302, 303(g), 303(r), 309(j), 332(a), 403; and Section 115(a) of the National Telecommunications and Information Administration Organization Act, 47 U.S.C. § 925(a).

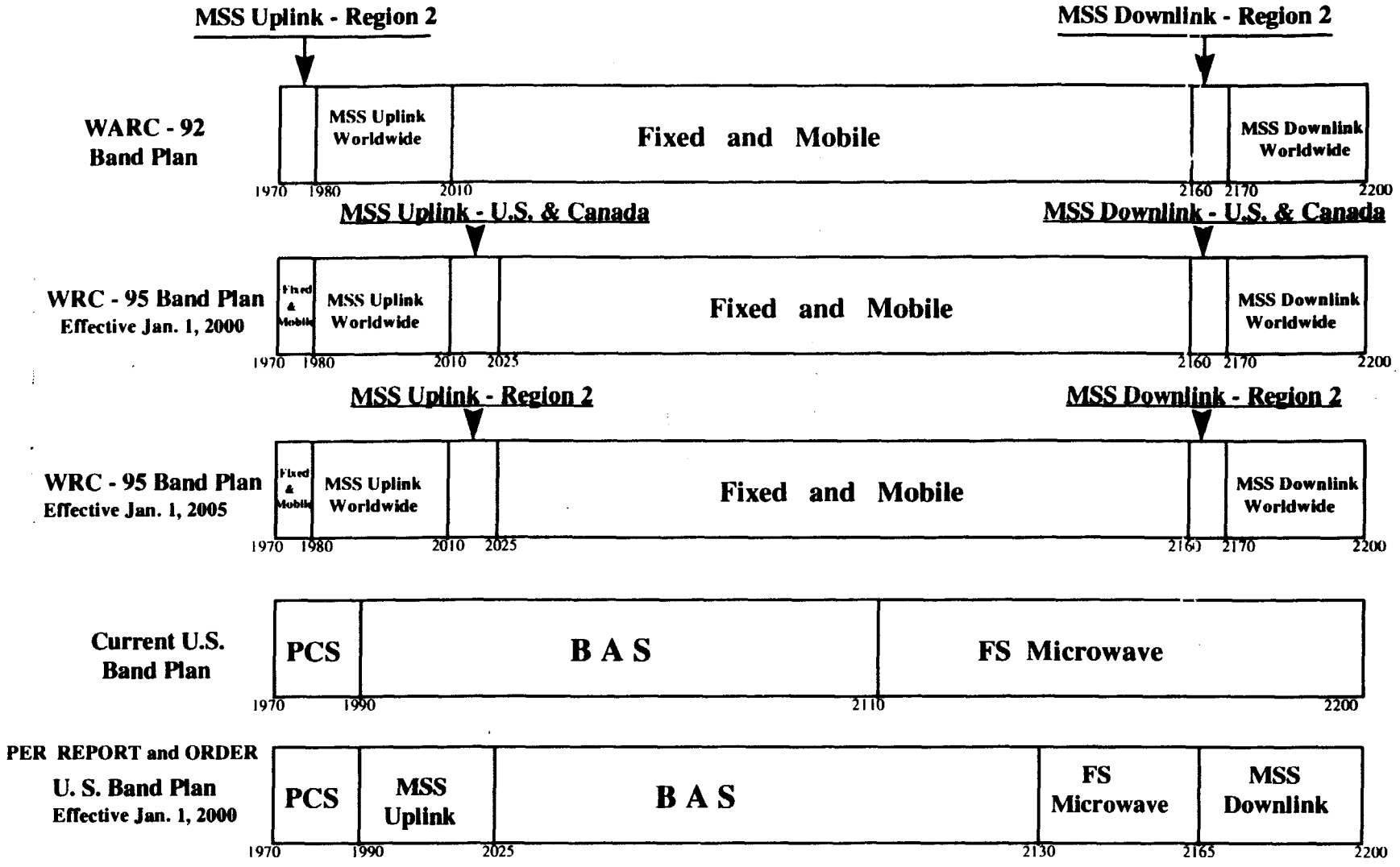
FEDERAL COMMUNICATIONS COMMISSION

William F. Caton
Acting Secretary

[173] *See generally* 47 C.F.R. §§ 1.1202, 1.1203, 1.1206(a).

Appendix A

BAND PLAN



APPENDIX B

List of Commenters

American Petroleum Institute
Association of American Railroads
Association of Federal Communications Consulting Engineers
Association for Maximum Service Television, et al.
Association of Public-Safety Communications Officials -- International
BellSouth Corporation
Celsat America, Inc.
COMSAT Corporation
Constellation Communications, Inc.
Creative Broadcast Techniques, Inc. & New Vision Group, Inc.
Ericsson Corporation
GE American Communications, Inc.
Hughes Telecommunications and Space Company
Iridium, Inc.
Loral/QUALCOMM Partnership, L.P.
Motorola, Inc.
Newcomb Communications, Inc.
Personal Communications Satellite Corporation
Society of Broadcast Engineers, Inc.
Southwestern Bell Mobile Systems
Teledesic Corporation
TRW, Inc.
UTC (formerly the Utilities Telecommunications Council)

List of Reply Commenters

Alcatel Network Systems, Inc.
American Petroleum Institute
Apple Computer, Inc.
Association of AmerIcan Railroads
Association for Maximum Service Television, et al.
Association of Public-Safety Communications Officials -- International
Celsat America, Inc.
CEPT Joint Project Team
COMSAT Corporation
Constellation Communications, Inc.
I-CO Global Communications Ltd.
Loral/QUALCOMM Partnership, L.P.
Motorola, Inc.
Newcomb Communications, Inc.

Personal Communications Industry Association
Personal Communications Satellite Corporation
Society of Broadcast Engineers, Inc.
Southwestern Bell Mobile Systems
Telecommunications Industry Association
TRW, Inc.
United States Sugar Corporation and Wackenhut Corporation
UTC
WCXP License Partnership

List of Supplemental Commenters

Alcatel Network Systems, Inc.
American Petroleum Institute
Ameritech, Inc.
Association of American Railroads
Association for Maximum Service Television, et al.
Association of Public-Safety Communications Officials -- International
Dr. John Bellamy
BellSouth Corporation
The State of California
Central Iowa Power Cooperative
Corn Belt Power Cooperative
Hughes Telecommunications and Space Company
Iridium, Inc.
Loral/QUALCOMM Partnership, L.P.
Los Angeles County Sheriff's Department
Minnesota Department of Transportation
The MSS Coalition
Society of Broadcast Engineers, Inc.
Telecommunications Industry Association
UTC

APPENDIX C

Final Rules

Part 2 of Title 47 of the Code of Federal Regulations is amended as follows:

PART 2 -- FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

1. The authority citation for part 2 continues to read as follows:

AUTHORITY: Sec. 4, 302, 303, and 307 of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154, 302, 303 and 307, unless otherwise noted.

2. Section 2.106, the Table of Frequency Allocations, is amended as follows:

a. Remove the existing entries for 1990-2200 MHz.

b. Add entries in numerical order for 1990-2200 MHz.

c. In the International Footnotes under heading I, add footnotes S5.388, S5.389A, S5.389B, S5.389C, S5.389D, S5.389E, S5.389F, S5.391, and S5.392.

d. In the International Footnotes under heading II, remove footnotes 747A and 750A.

e. Revise non-Government footnotes NG118 and NG153.

The revisions and additions read as follows:

§ 2.106 Table of Frequency Allocations.

* * * * *

International table			United States table		FCC use designators	
Region 1 -- allocation MHz	Region 2 -- allocation MHz	Region 3 -- allocation MHz	Government	Non-Government	Rule part(s)	Special-use frequencies
			Allocation MHz	Allocation MHz		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
*	*	*	*	*	*	*
1980 – 1990 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A S5.389F	1980 – 1990 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A S5.389B	1980 – 1990 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A	1980 – 1990	1980 – 1990 FIXED MOBILE	FIXED MICROWAVE (101) PERSONAL COMMUNICATIONS (24)	
1990 – 2010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A S5.389F	1990 – 2010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A	1990 – 2010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A	1990 – 2010 US111	1990 – 2010 MOBILE-SATELLITE (Earth-to-space) US111	AUXILIARY BROADCASTING (74) CABLE TELEVISION (78) SATELLITE COMMUNICATIONS (25)	
2010 – 2025 FIXED MOBILE S5.388	2010 – 2025 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389C S5.389D S5.389E	2010 – 2025 FIXED MOBILE S5.388	2010 – 2025 US111	2010 – 2025 MOBILE-SATELLITE (Earth-to-space) US111	AUXILIARY BROADCASTING (74) CABLE TELEVISION (78) SATELLITE COMMUNICATIONS (25)	

International table			United States table		FCC use designators	
Region 1 -- allocation MHz (1)	Region 2 -- allocation MHz (2)	Region 3 -- allocation MHz (3)	Government Allocation MHz (4)	Non-Government Allocation MHz (5)	Rule part(s) (6)	Special-use frequencies (7)
2025 – 2110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORA-TION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) S5.392	2025 – 2110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORA-TION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) S5.392	2025 – 2110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORA-TION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) S5.392	2025 – 2110 US90 US111 US219 US222	2025 – 2110 FIXED MOBILE US90 US111 US219 US222 NG23 NG118	AUXILIARY BROAD-CASTING (74) CABLE TELEVISION (78)	
2110 – 2120 FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) S5.388	2110 – 2120 FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) S5.388	2110 – 2120 FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) S5.388	2110 – 2120 US111 US252	2110 – 2120 FIXED MOBILE US111 US252 NG23 NG118	AUXILIARY BROAD-CASTING (74) CABLE TELEVISION (78) FIXED MICRO-WAVE (101) PUBLIC MOBILE (22)	
2120 – 2130 FIXED MOBILE S5.388	2120 – 2130 FIXED MOBILE Mobile-Satellite (space-to-Earth) S5.388	2120 – 2130 FIXED MOBILE S5.388	2120 – 2130	2120 – 2130 FIXED MOBILE NG23 NG118	AUXILIARY BROAD-CASTING (74) CABLE TELEVISION (78) FIXED MICRO-WAVE (101) PUBLIC MOBILE (22)	

International table			United States table		FCC use designators	
Region 1 – allocation MHz	Region 2 – allocation MHz	Region 3 – allocation MHz	Government	Non-Government	Rule part(s)	Special-use frequencies
			Allocation MHz	Allocation MHz		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2130 – 2150 FIXED MOBILE S5.388	2130 – 2150 FIXED MOBILE Mobile-Satellite (space-to-Earth) S5.388	2130 – 2150 FIXED MOBILE S5.388	2130 – 2150	2130 – 2150 FIXED MOBILE NG23 NG153	FIXED MICRO-WAVE (101) PUBLIC MOBILE (22)	EMERGING TECHNOL-OGIES
2150 – 2160 FIXED MOBILE S5.388	2150 – 2160 FIXED MOBILE Mobile-Satellite (space-to-Earth) S5.388	2150 – 2160 FIXED MOBILE S5.388	2150 – 2160	2150 – 2160 FIXED NG23	DOMESTIC PUBLIC FIXED (21) FIXED MICRO-WAVE (101)	
2160 – 2165 FIXED MOBILE S5.388 S5.392A	2160 – 2165 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389C S5.389D S5.389E	2160 – 2165 FIXED MOBILE S5.388	2160 – 2165	2160 – 2165 FIXED MOBILE NG23 NG153	DOMESTIC PUBLIC FIXED (21) FIXED MICRO-WAVE (101) PUBLIC MOBILE (22)	EMERGING TECHNOL-OGIES
2165 – 2170 FIXED MOBILE S5.388 S5.392A	2165 – 2170 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389C S5.389D S5.389E	2165 – 2170 FIXED MOBILE S5.388	2165 – 2170	2165 – 2170 MOBILE-SATELLITE (space-to-Earth) NG23	FIXED MICRO-WAVE (101) PUBLIC MOBILE (22) SATELLITE COM-MUNICATIONS (25)	

International table			United States table		FCC use designators	
Region 1 – allocation MHz	Region 2 – allocation MHz	Region 3 – allocation MHz	Government	Non-Government	Rule part(s)	Special-use frequencies
			Allocation MHz	Allocation MHz		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2170 – 2200 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389A S5.389F S5.392A	2170 – 2200 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389A	2170 – 2200 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389A	2170 – 2200	2170 – 2200 MOBILE-SATELLITE (space-to-Earth) NG23	FIXED MICRO-WAVE (101) PUBLIC MOBILE (22) SATELLITE COM-MUNICATIONS (25)	
*	*	*	*	*	*	*

INTERNATIONAL FOOTNOTES

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I. "S" Numbering Scheme

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S5.388 The bands 1885-2025 MHz and 2110-2200 MHz are intended for use, on a worldwide basis, by administrations wishing to implement the future public land mobile telecommunication systems (FPLMTS). Such use does not preclude the use of these bands by other services to which these bands are allocated. The bands should be made available for FPLMTS in accordance with Resolution 212 (Rev.WRC-95).

S5.389A The use of the bands 1980-2010 MHz and 2170-2200 MHz by the mobile-satellite service is subject to coordination under Resolution 46 (Rev.WRC-95)/No. S9.11A and to the provisions of Resolution 716 (WRC-95). The use of these bands shall not commence before 1 January 2000; however the use of the band 1980-1990 MHz in Region 2 shall not commence before 1 January 2005.

S5.389B The use of the band 1980-1990 MHz by the mobile-satellite service shall not cause harmful interference to or constrain the development of the fixed and mobile services in Argentina, Brazil, Canada, Chile, Ecuador, the United States, Honduras, Jamaica, Mexico, Peru, Suriname, Trinidad and Tobago, Uruguay and Venezuela.

S5.389C The use of the bands 2010-2025 MHz and 2160-2170 MHz in Region 2 by the mobile-satellite service shall not commence before 1 January 2005 and is subject to coordination under Resolution 46 (Rev.WRC-95)/No. S9.11A and to the provisions of Resolution 716 (WRC-95).

S5.389D In Canada and the United States the use of the bands 2010-2025 MHz and 2160-2170 MHz by the mobile-satellite service shall not commence before 1 January 2000.

S5.389E The use of the bands 2010-2025 MHz and 2160-2170 MHz by the mobile-satellite service in Region 2 shall not cause harmful interference to or constrain the development of the fixed and mobile services in Regions 1 and 3.

S5.389F In Algeria, Benin, Cape Verde, Egypt, Mali, Syria and Tunisia, the use of the bands 1980-2010 MHz and 2170-2200 MHz by the mobile-satellite service shall neither cause harmful interference to the fixed and mobile services, nor hamper the development of those services prior to 1 January 2005, nor shall the former service request protection from the latter services.

S5.391 In making assignments to the mobile service in the bands 2025-2110 MHz and 2200-2290 MHz, administrations shall take into account Resolution 211 (WARC-92).

S5.392 Administrations are urged to take all practicable measures to ensure that space-to-space transmissions between two or more non-geostationary satellites, in the space research, space operations and Earth exploration-satellite services in the bands 2025-2110 MHz and 2200-2290 MHz, shall not impose any constraints on Earth-to-space, space-to-Earth and other space-to-space transmissions of those services and in those bands between geostationary and non-geostationary satellites.

S5.392A Additional allocation: in Russia, the band 2160-2200 MHz is also allocated to the space research service (space-to-Earth) on a primary basis until 1 January 2005. Stations in the space research service shall not cause harmful interference to, or claim protection from, stations in the fixed and mobile services operating in this frequency band.

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NON-GOVERNMENT (NG) FOOTNOTES

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NG118 Television translator relay stations may be authorized to use frequencies in the 2025-2130 MHz band on a secondary basis to stations operating in accordance with the Table of Frequency Allocations.

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NG153 The 2145-2150 MHz and 2160-2165 MHz bands are reserved for future emerging technologies on a co-primary basis with the fixed and mobile services. Allocations to specific services will be made in future proceedings.

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APPENDIX D

Proposed Rules

Parts 2, 74, and 78 of Title 47 of the Code of Federal Regulations are proposed to be amended as follows:

PART 2 -- FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

1. The authority citation for part 2 continues to read as follows:

AUTHORITY: Sec. 4, 302, 303, and 307 of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154, 302, 303 and 307, unless otherwise noted.

2. Section 2.106, the Table of Frequency Allocations, is amended as follows:

a. Remove the existing entries for 1990-2025 and 2165-2200 MHz.

b. Add entries in numerical order for 1990-2025 and 2165-2200 MHz.

c. Add non-Government footnotes NG156 and NG157 in numerical order.

The revisions and additions read as follows:

§ 2.106 Table of Frequency Allocations.

* * * * *

International table			United States table		FCC use designators	
Region 1 – allocation MHz	Region 2 – allocation MHz	Region 3 – allocation MHz	Government	Non-Government	Rule part(s)	Special-use frequencies
			Allocation MHz	Allocation MHz		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
*	*	*	*	*	*	*
1990 – 2010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A S5.389F	1990 – 2010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A	1990 – 2010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A	1990 – 2010 US111	1990 – 2010 MOBILE-SATELLITE (Earth-to-space) US111 NG156	AUXILIARY BROADCASTING (74) CABLE TELEVISION (78) SATELLITE COMMUNICATIONS (25)	
2010 – 2025 FIXED MOBILE S5.388	2010 – 2025 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389C S5.389D S5.389E	2010 – 2025 FIXED MOBILE S5.388	2010 – 2025 US111	2010 – 2025 MOBILE-SATELLITE (Earth-to-space) US111 NG156	AUXILIARY BROADCASTING (74) CABLE TELEVISION (78) SATELLITE COMMUNICATIONS (25)	
*	*	*	*	*	*	*
2165 – 2170 FIXED MOBILE S5.388 S5.392A	2165 – 2170 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389C S5.389D S5.389E	2165 – 2170 FIXED MOBILE S5.388	2165 – 2170 	2165 – 2170 MOBILE-SATELLITE (space-to-Earth) NG23 NG157	FIXED MICROWAVE (101) PUBLIC MOBILE (22) SATELLITE COMMUNICATIONS (25)	
2170 – 2200 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389A S5.389F S5.392A	2170 – 2200 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389A	2170 – 2200 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389A	2170 – 2200 	2170 – 2200 MOBILE-SATELLITE (space-to-Earth) NG23 NG157	FIXED MICROWAVE (101) PUBLIC MOBILE (22) SATELLITE COMMUNICATIONS (25)	

International table			United States table		FCC use designators	
Region 1 – allocation MHz	Region 2 – allocation MHz	Region 3 – allocation MHz	Government	Non-Government	Rule part(s)	Special-use frequencies
			Allocation MHz	Allocation MHz		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
*	*	*	*	*	*	*

NON-GOVERNMENT (NG) FOOTNOTES

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NG156 In the 1990-2025 MHz band, incumbent Fixed and Mobile Service operations (Television Broadcast Auxiliary and Cable Television Relay) may continue to use the band on a primary basis until a Mobile Satellite Service applicant(s) or licensee(s) relocates all affected operations according to the transition plan found at 47 C.F.R. §§ 74.690 and 101.69.

NG157 In the 2110-2130 MHz and 2165-2200 MHz bands, incumbent Fixed and Mobile Service operations may continue to use the band on a primary basis until a Mobile Satellite Service applicant(s) or licensee(s) relocates the affected operations according to the transition plan found at 47 C.F.R. § 101.69.

* * * * *

I. Part 74 of Chapter I of Title 47 of the Code of Federal Regulations is amended as follows:

PART 74 -- EXPERIMENTAL RADIO, AUXILIARY, SPECIAL BROADCAST AND OTHER PROGRAM DISTRIBUTION SERVICES

1. The authority citation for Part 74 is revised to read as follows:

AUTHORITY: Sec. 4, 302, 303, and 307 of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154, 302, 303 and 307, unless otherwise noted.

2. Section 74.602 is amended as follows:

a. Add the following subparagraph (a)(3)

* * * * *

(3) Effective January 1, 2000, or the day after the last Fixed Service microwave incumbent is relocated from the 2110-2130 MHz band, whichever is later, the first seven channels of Band A will be as follows:

2025-2040 MHz
2040-2055 MHz
2055-2070 MHz
2070-2085 MHz
2085-2100 MHz
2100-2115 MHz
2115-2130 MHz

Broadcast Auxiliary Service, Cable Television Remote Pickup Service, and Local Television Transmission Service licensees will be required to use this Band A channel plan after completion of relocation by an Emerging Technologies licensee in accordance with § 74.690.

3. Add the new Section 74.690 as follows:

§ 74.690 Transition of the 1.990-2.025 GHz band from the Broadcast Auxiliary Service to emerging technologies.

(a) Licensees proposing to implement services using emerging technologies (ET Licensees) may negotiate with Broadcast Auxiliary Service licensees (Existing Licensees) in these bands for the purpose of agreeing to terms under which the Existing Licensees would relocate their operations to other authorized bands or to other media, or alternatively, would accept a sharing arrangement with the ET Licensee that may result in an otherwise impermissible level of interference to the Existing Licensee's operations. ET Licensees may also negotiate agreements for relocation of the Existing Licensees' facilities within the 2 GHz band in which all interested parties agree to the relocation of the Existing Licensee's facilities elsewhere within these bands. "All interested parties" includes the incumbent licensee, the emerging technology provider or representative requesting and paying for the relocation, and any existing or emerging technology licensee of the spectrum to which the incumbent's facilities are to be relocated.

(b) Existing Licensees in the 1.99-2.025 GHz band allocated for licensed emerging technology services will maintain primary status in these bands until an ET Licensee completes relocation of the Existing Licensee's operations.

(c) The Commission will amend the operating license of the Existing Licensee to secondary status only if the following requirements are met:

(1) The service applicant, provider, licensee, or representative using an emerging technology guarantees payment of all relocation costs, including all engineering, equipment, site and FCC fees, as well as any reasonable additional costs that the relocated Existing Licensee might incur as a result of operation in another authorized band or migration to another medium.

(2) The emerging technology service entity completes all activities necessary for implementing the replacement facilities, including engineering and cost analysis of the relocation procedure and, if radio facilities are used, identifying and obtaining, on the incumbents' behalf, new microwave or Local Television Transmission frequencies and frequency coordination; and

(3) The emerging technology service entity builds the replacement system and tests it for comparability with the existing system.

(d) The Existing Licensee is not required to relocate until the alternative facilities are available to it for a reasonable time to make adjustments, determine comparability, and ensure a seamless handoff.

(e) If within one year after the relocation to new facilities the Existing Licensee demonstrates that the new facilities are not comparable to the former facilities, the emerging technology service entity must remedy the defects or pay to relocate the Existing Licensee back to its former or equivalent frequencies.